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RESEARCH PAPER

A Survey of Forestland Conservation Easements in the United States: Implications for Forestland Owners and Managers

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Abstract Internationally, conservation easements are increasingly popular land management tools for private landowners, government agencies and non-governmental organizations seeking to preserve forests and other natural settings. This paper reports a study of the design and use of conservation easements by organizations and public agencies in the USA. More than 355 conservation organizations and 16 state agencies holding at least 3,598 forestland easements were identified. Demonstrated shortfalls in baseline forest inventories, record keeping, and professionally-developed management plans were evident on working forest easements. Failure to address these shortcomings runs the risk of jeopardizing the legitimacy of the easement approach even where favorable legal and tax conditions exist. Management restrictions varied broadly, with a minority of respondents prohibiting such techniques as clearcutting and salvage logging. Concerns for the use of chemicals, best management practices, and streamside management zones were commonly reflected in easement language, whereas logging road design and the cultivation of old-growth conditions remain largely undeveloped. Implications from the US experience, where easements are relatively well-developed, highlights the need for professional forestry advice—particularly for non-industrial or small-scale forest owners—in both easement development and implementation, the need for careful planning, and the need to carefully consider the respective goals of the forest landowners in crafting the easement documents. In the cases of developing nations, consideration of the differing needs of landowners may require increased flexibility in management documents.

Keywords Property rights · Easement documents · Fragmentation and parcelization · Baseline inventory · Streamside management zones

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Introduction

Gifford Pinchot began his work at the historic Biltmore Estate in Asheville, North Carolina, USA, musing that 'trees could be cut and the forest preserved at one and the same time' (Pinchot 1947, p. 49). Since then, balancing land and forest use with conservation has been at the forefront of political debates, particularly when timber harvesting prompted fears of 'timber famines' (Cubbage et al. 1993; McEvoy 1998). As a result, US government agencies and non-government conservation organizations have increasingly relied upon various conservation tools to protect forestlands, including fee-simple purchase, leases, tax incentives, and conservation easements. These tools have been used to conserve the forest land base and protect vital natural resources as early as the late-1960s in the USA, when public agencies and non-profit conservation organizations began working cooperatively to protect private lands from development (Endicott 1993; Lehman 1995). Modern forest conservation efforts have broadened their scope to consider the fragmentation and parcelization of forest lands resulting from urbanization, losses to wildlife habitat, working farm and forestland viability, and flood and erosion control.

Many of these modern conservations concerns are national and even transnational in scope. For example, loss of forested habitat is certainly a problem faced in urbanizing areas of the United States (Alig et al. 2003; Smith et al. 2004; Wear and Greis 2002), but is also a primary concern world-wide (Kiss 2004). Clearly, the potential role that forests can play in mitigating global climate change is also of international concern (USDA 2004; Watson et al. 2000). Conservation easements can provide one means for addressing these landscape-scale issues.

A conservation easement is the legal acquisition of specified real property rights, either through purchase or donation, by a government agency or private organization (Helms 1998). The landowner (grantor) typically retains the fee title to the encumbered land, while the agency or organization (grantee) holds the rights to development (Diehl and Barrett 1988; McEvoy 1998). Conservation easements generally prohibit development of the property in perpetuity; in essence, property burdened by a conservation easement generally may never be developed. Though not mandatory, the easement document may be accompanied by a separate planning document that specifically details how the management of the easement lands will occur.

The increased reliance upon this particular conservation tool is due to a number of reasons: the perpetual nature of the easements permits extinguishing development rights without the expense of actually purchasing all of the property rights in fee simple; governments can use easements as a market conservation alternative to land-use regulations or eminent domain, both of which can be particularly contentious, particularly in the United States (Mortimer 2004); landowners maintain ownership of the property and can in most cases continue active management of the agricultural and forest resources (Telesetsky 2001); landowners are under no coercion when voluntarily placing easements on their properties; and landowners may receive tax benefits (i.e. partial relief from US federal and state income and estate taxes and local property taxes) for charitable contributions of the conservation easements (Haney et al. 2001; Small 2002), assuaging tax liabilities that in some cases might require the landowner to

liquidate some, if not all, of the land. Finally, conservation easements provide a means for conservation-minded landowners to pass along a property to their heir(s) and assure the current land use is maintained into the indefinite future.

The use of conservation easements varies by nation, and is to a great extent dependent upon each country's legal infrastructure. For example, the civil code forming the basis of many European and Latin American land-use laws prohibits independent easements, wherein the encumbered property is not adjacent to the property of the easement beneficiary (Swift et al. 2004; Wolman 2004). As this is the type of easement preferred by many non-governmental organizations, existing legal frameworks remain a fundamental impediment to easement creation in those jurisdictions. It is only where special exceptions have been created, or where the law has been modified to permit easements for non-use or conservation purposes that the use of conservation easements taken hold (Swift et al. 2004). With a relatively favorable legal climate, the USA leads in the application of conservation easements, though they have been utilized to varying extents across Europe (Bowles et al. 1998; de Klemm and Shine 1993), in Costa Rica (Snider et al. 2003), the UK, Canada, Switzerland and Australia (de Klemm and Shine 1993), Guiana and Peru (Katila and Puustjärvi 2004), and in Argentina, Ecuador, Guatemala, Mexico and Paraguay (Swift et al. 2004).

Of at least equal importance to the suitability of conservation easements for forest and biodiversity protection, however, are the definition of property rights, the ability to monitor the easement property, and the enforcement authority or judicial integrity of the jurisdiction in question (Katzman and Cale 1990). In a related sense, the effective implementation of conservation easements depends also on the process whereby the easement is established and infrastructure whereby the encumbered property is managed. Conservation easements and their successful application thereby present practical management challenges to the easement holders and grantors that may range from simple to the quite complex. For example, instead of mitigating the effects of urban development, easements scattered over a landscape without a definite focus or plan may produce protected islands of questionable conservation value (Mahoney 2002), or should monitoring and enforcement costs become substantial over time such costs may prevent organizations and agencies from ensuring effective easement compliance (Merenlender et al. 2004).

This paper examines elements of the management infrastructure that may influence how well an easement will serve both grantor and grantee purposes. Forested conservation easements in the USA provide the setting for the paper, though the findings should be applicable to any jurisdiction where conservation easements are used or are being considered to protect the values associated with working private forests. The object of this paper is to investigate the use of what might be considered 'good practices,' both that are occurring in the United States, and that might be applicable to other national settings.

Research Method

The goal of the research reported in this paper has been to assess the forest management framework established by government agencies and conservation

organizations for interacting with private forest landowners that have sold or donated a conservation easement on their forested properties. Specifically, the planning and monitoring of forested conservation easements is examined, the restrictions which may affect landowner management of their forested properties, if any, are described, and areas in which procedural improvements could be made to better assure grantor and grantee outcomes are identified.

A survey was conducted to inventory the extent to which selected forest management activities are effected by conservation easements, and to assess the infrastructure for forested conservation easement implementation. Survey participants in this study were organizations and government agencies that hold conservation easements on all land types, including forestland. The Land Trust Alliance (LTA) website (www.lta.org) was the source for contact information for US conservation organizations, which in 2003 reported a total of 1,527 conservation organizations that followed its *Land Trust Standards and Practices*. These *Standards and Practices* are a set of national guidelines to which conservation organizations must adhere to be recognized by the LTA (LTA 2001).

Additionally, an Internet search was completed in December 2003 to locate all federal and state government agencies that utilize conservation easements as a land-use tool. Government agencies holding easements were surveyed with the same survey instrument as the conservation organizations, which were sent to 63 different state agencies.

The questionnaire was developed for administration and completion by the program directors for each of the conservation organizations or public agencies. Survey design principles taken from Dillman's (2000) 'tailored design method' were used to develop and administer the questionnaire. A questionnaire test was undertaken by local conservation organizations in the Commonwealth of Virginia. To avoid potential double counting, organizations and agencies that co-held easements with other entities were asked to include only the easements that they primarily held. The secondary analysis compared this study's results to previous studies by Gaddis (1999), Bick (1996), Boelhower (1995) and others.

Organizational surveys were distributed in Fall 2003 to the 1,527 conservation organizations. Responses from 918 organizations provided a usable response rate of 60.1%. Of the 918 organizations, 382 conservation organizations reported not conserving any type of land by conservation easement, instead using conservation methods including fee simple purchase and facilitating land transfers to public government or other organizations. The remaining 536 (58.4%) organizations currently hold conservation easements on various land types, including forestland. Twenty-nine government agencies also responded to the survey, a response rate of 46.0%, although several agencies admitted that their easement programs were recently established or not currently funded.

To further gauge the extent to which forested properties are being actively managed, survey participants were also asked if any of the easements they held were being managed for any forest-related product. The prevalence of these 'working forest' conservation easements (WFC) provides increased resolution on the extent to which management is a desirable component of forest conservation, and to what extent it is encouraged or restricted.

Survey Response Observations

Baseline Property Inventories

Survey participants were asked if baseline forest inventories were completed on each subject property before drafting and executing the easement document. Baseline inventories are considered the benchmark for future inspections and other forest assessments. Only 33% of organizational respondents reported completing a baseline forest inventory prior to enacting a non-working forest easement, while the percentage increased to 44% on working forest easements. Agencies reported even fewer completed inventories: no agency reported an inventory on non-working forests, while only 38% completed inventories on WFCs.

Planning for Easement Management

Survey participants were asked whether some form of stewardship or management plan was required for their forested easements. Organizations reported such a requirement on 33% of their non-working forest properties, but the number nearly doubled to 62% on the WFCs. Agencies also reported an increase to 69% on their WFCs, up from 50% on non-working easements (Table 1).

Easement Record-keeping

For purposes of this study, 'forest records' were defined as estimates of total forestland area and/or the total number of easements with over 10 acres (2.2 ha) of forest. Both organizations and agencies were then asked to what extent they maintain such records on their forested easements. Forty-five percent of conservation organizations reported keeping records of this type, while 28% of agencies reported retaining such records. Importantly, the absence of forest record keeping by well over half of the easement holders precludes an accurate portrayal of total forestland area encumbered by easements, though forestlands were protected in over one-quarter of all reported easements.

Reserved Rights for Forest Management

During easement drafting, grantors may negotiate to reserve the legal right to manage their properties for specific uses. Like easement restrictions, reserved rights take many forms based on the characteristics of each property, and are normally

Table 1 Respondents requiring a forest stewardship or management plan

Requirement category	Organizations with		Agencies with	
	Non-WFCE (n = 115) (%)	WFCE (n = 240) (%)	Non-WFCE (n = 2) (%)	WFCE (n = 16) (%)
Required	33	62	50	69
Not applicable	3	0	0	0
No response	2	1	0	0

acceptable so long as they do not negatively influence the protected property's conservation values.

Survey participants were asked how many working forest easements underwent some degree of timber harvesting since encumbrance. Organizational respondents estimated a minimum of 895, or nearly a quarter (26%) of forestland easements, were harvested. Agencies reported harvesting on a slightly higher percentage of their forested easements (38%). The types of silvicultural techniques used on working forests varied considerably, with single-tree selection being the most common for both organizational and agency easement holders (Table 2).

In addition to producing traditional forest products including timber and pulpwood, survey participants also reported managing for a wide range of non-timber forest products (Table 3), though timber and firewood were the dominant forest products across all WFC ownerships.

Forest Management Restrictions

In addition to affirmatively reserved management rights, prohibitory constraints may be placed on protected properties. These may range from mutually agreeing to exclude forest management altogether, to permitting active forest management while limiting the types of management treatments permitted. Some grantees may permit any type of forest management treatment recommended in a professionally-written forest stewardship plan. Notably, the participants' responses to restricting a number of common management tools (Table 4) consistently reflect a relatively heightened concern among both private organizations and agencies with chemical applications to the properties.

The specific use of more controversial treatments including clearcutting and salvage harvesting were also investigated. Survey participants were asked to what extent clearcutting constraints are normally contained within the language of their easement agreements. Sixty-five percent of organizational respondents prohibit the use of clearcutting on non-working forest easements, though only 45% on WFCs. By contrast no agency reported addressing the use of clearcutting on non-WFCs, while 27% prohibited its use on WFCs.

Salvage harvesting appeared more acceptable where active forest management is integrated into the easement. The proportion of organizations permitting salvage practices increased from 43% on non-WFCs to 69% on WFCs, with agencies also increasing from none on non-WFCs to 81% on WFCs.

Table 2 Respondents with WFCEs that allow the respective harvesting technique

Harvesting technique	Respondents allowing technique	
	Organizations (n = 240) (%)	Agencies (n = 16) (%)
Single-tree selection	71	81
Consumptive firewood	64	69
Non-native and undesirable	63	75
Group-tree selection	55	69
Thin to minimum BA	48	81
Crop tree release	39	63
Clearcut	25	56
No harvest allowed	3	0

Table 3 Respondents with WFCEs that produce forest products

Potential forest products	Respondents with WFCE products	
	Organizations (n = 240) (%)	Agencies (n = 16) (%)
Timber	77	94
Firewood	66	63
Pulpwood	32	38
Maple syrup	15	19
Christmas trees	15	25
Nuts and berries	6	0
Floral greenery and handicraft	5	6
Wild plants	3	0
Post and poles	2	0
Medicinal products	1	0
Fruit	0.4	0
Botanicals[a]	0.4	0
Tree and shrub nurseries	0.4	0
Pine straw	0.4	0
Wildlife habitat and forage	0.4	0
Wildlife hunting	0.4	0
Hay	0.4	0

[a] Other valuable plant compounds that are not necessarily 'medicinal,' such as cosmetic or culinary

Table 4 Easement grantees' desire to restrict forest management on the easement property (weighted averages; high priority = 1 to low priority = 3)

Silvicultural treatment	Conservation organizations	Government agencies
Pesticide use	1.86	2.00
Herbicide use	1.90	2.20
Plantation reforestation	1.96	2.18
Fertilization	2.13	2.30
Prescribed burning	2.28	2.36
Forest thinning	2.43	2.18
Timber stand improvement	2.51	2.55
Wildlife food plots	2.59	2.20

Four other potential contract clauses were addressed in the questionnaire, namely: Best Management Practices (BMPs), Streamside Management Zones (SMZs), logging road design, and the cultivation of old-growth attributes (Table 5). The first three clauses were considered additional requirements placed on permitted forest management activities, whereas the last clause, enhancing old-growth

Table 5 Respondents requiring additional forestry clauses in the easement document or stewardship plan

Restrictive clauses	Respondents[a] requiring clause	
	Organizations (%)	Agencies (%)
BMPs	62	75
SMZs	68	75
Logging road	31	38
Old-growth attributes	31	31

[a] Percentages do not necessarily add up to 100%. Blank and N/A responses were omitted from table

attributes, was considered a grantee's affirmative right or a grantor's reserved right for a protected property.

When used in conjunction with a forest stewardship plan, BMPs are a means to link soil conservation to forest management operations on easement lands (Lind 2001). Survey participants were asked if state-sanctioned BMP clauses were required to address soil and water quality concerns from harvesting. The majority, 62% of organizational respondents and 75% of agency respondents, require BMP clauses reflecting state guidelines or requirements.

SMZs are forested areas along streams and rivers that receive special management treatment during harvesting to protect water quality (Helms 1998). Sixty-eight percent of organizational respondents stated they address SMZs to some degree in either the easement document or the plan. A similar percentage (75%) of agency respondents also addressed SMZs on their easements.

Conservationists have begun promoting the accumulation or restoration of old-growth forest attributes and other biological targets on private lands (TNC 2004). Survey participants were consequently asked if a clause was included in their typical easement agreements addressing the restoration of old-growth attributes or targets. Thirty-one percent of both organizational and agency respondents with WFCs report incorporating some form of old-growth clause into the easement documents.

Easement Monitoring Frequency

The monitoring frequency by both organizational and agency grantees was found to vary by easement type (Table 6). The majority of easement holders visit or inspect the easement property once per year, which coincides with recommendations in the literature, as reported for example by Wright (1993), Bick and Haney (2001), Lind (2001) and Rilla (2002).

Easement Enforcement

Boelhower (1995) and Parker (2002) report their survey respondents experienced several violations of easement provisions. If a violation occurs, it is generally preferable for the grantor to enjoin all undesirable actions and mitigate the violation(s) if possible. Sometimes litigation resolves easement violations, while in other cases, Diehl and Barrett (1988) suggest arbitration, mediation, and restoration as possible solutions. Easement grantees have traditionally found that problems commonly arise from loggers misunderstanding easement provisions, harvesting without management plans, and from land clearing issues (Boelhower 1995). In this survey,

Table 6 Average monitoring frequency of respondents with forest easements and working forest conservation easements per year

Monitoring frequency	Organizations with		Agencies with	
	Non-WFCE (n = 115) (%)	WFCE (n = 240) (%)	Non-WFCE (n = 2) (%)	WFCE (n = 16) (%)
Less than 1 time	21	11	50	37
One time per year	67	81	50	63
More than 1 time	12	8	0	0

52 respondents (5.6%) reported experiencing a total of 112 easement violations. Nine reported that in at least one of the violations a litigation remedy was required.

The specific violations encountered by study respondents comprised five categories: *forest management, water and soil quality, recreation and access, impacts on the adjacent landowner*, and *other common violations*. Forest management violations were the most commonly reported violations, most often dealing with some aspect of timber harvesting such as the impermissible use of clearcutting, harvesting near streams, harvesting in excess of easement limits, and harvesting in prohibited areas. The remaining forest management violations included issues related to the management plan and minor forestry-related violations such as slash remediation. Some respondents reported water and soil disturbance violations, including illegal stream crossing, wetland alteration and vehicular entry into wet areas. All soil quality violations were related to erosion during timber harvesting. Finally, two organizations reported adjacent landowners unintentionally harvesting the easement grantor's trees, while one respondent reported a third-party timber trespass violation.

Discussion

Many of the findings in this study suggest that even though conservation easements are well-developed in the USA, there remain aspects in which improvements could be made. This implies that in regions around the world where conservation easements are relatively nascent, there are lessons to be gleaned from US easement processes, particularly from both the perspectives of forest landowners contemplating the use of easements and from the administration of existing easements.

Improvements in Forest Management and Planning

While the majority of organizational (62%) and agency respondents (69%) already require some form of plan on working forest easements, a substantial percentage do not. This tends to reflect the greater lack of planning among non-industrial forest landowners across the US (Butler and Leatherberry 2004). For such easements with no plan requirement, Boelhower (1995, p. 41) stated that 'there is no clear direction on what management practices will be acceptable to the easement holder.' Landowners considering an easement, regardless of the national setting, should prioritize the planning process, with particular attention to whether stewardship restrictions are better placed in the conservation easement document or in an accompanying management plan. Often, decisions restricting forest management are better left for professional foresters to decide upon based on the property's characteristics. A management plan can evolve with scientific and technological changes in forest management more readily than the permanent easement document, which typically requires extreme legal measures to amend.

The literature tends to promote plan completion during easement drafting or before any active management begins (Boelhower 1995, Lind 2001). The survey data reflect that plan completion typically occurs *after* easement drafting but *before* any type of land management; 62% of organizational and over 49% of agency respondents stated they require plan completion under this arrangement. An important criticism of management plan completion after easement drafting may be

the landowner's inability to decipher whether the easement document was drafted in a way to promote or permit active forest management. If management plans are not developed before easement drafting, landowners cannot be certain that the easement provisions are complement their forest management goals. Landowners should encourage plan completion earlier in the easement drafting process, because this can 'advance easement negotiations and clarify landowner and easement holder expectations, giving a level of comfort to both parties' (Lind 2001, p. 31).

Inadequate Records and Inventories

Respondents generally kept insufficient records concerning total forestland conserved on each easement. Only 68% of organizations provided an estimate of total forestland area conserved for each easement or could list the number of easements with at least a 10-acre contiguous block of forestland. For agency respondents, only 50% had actual forestland acreage values in their records. Even a smaller percentage of easement holder actively managing their properties had completed baseline forest inventories on their easements. Only 44% of organizations with WFCs reported having a baseline forest inventory. Similarly, only 38% of agency respondents reported completing a WFC baseline inventory.

This lack of property documentation and inventory raises serious concerns about the drafting and administration of current forest easements. Because easement restrictions are perpetual, conscientious decision-making requires understanding the long-term impact of each respective property's restrictions. This study importantly demonstrates that nearly 33% of grantees holding actively managed forest conservation easements do not know how many forestland acres are protected by these easements. Landowner confidence in the future management of the property, assurance of conservation values, and enforcement of easement conditions are all undermined by a failure to maintain adequate records and descriptions of the forest land. Finally, but importantly, this observation is particularly salient in light of the current US government perception that inadequate inventories may be a political rationale for restricting the future use and tax advantages of conservation easements (Joint Commission on Taxation 2005).

Monitoring Challenges

Easement monitoring is a fundamental grantee obligation. Periodic inspections by the grantee assures the grantor adheres to the easement agreement's provisions. Inspection frequency varies based on the protected property's uses. While annual inspections were common for working properties in this study, Lind (2001) recommended 'day-to-day monitoring' in addition to the annual inspections when trees are actively harvested on a property. Nonetheless, results from this survey are encouraging. Only 11% of working forestland easement holders reported inspecting less than once a year, and 8% reported inspecting more than once a year. Unfortunately, nearly one-third of agency grantees conducted inspections less than once a year on working easements, and one-half inspected less than once a year on non-working easements. Like inventorying, monitoring proves crucial both to ensuring the intents of the easement agreements are met and to sound stewardship.

While speculative, it may be that the risks to the integrity of the easement when WFCs are being actively managed spur a heightened need for more frequent monitoring by organizational grantees. It too may be a perceived lack of regulatory authority, relative to agency grantees, that prompts more frequent site visits. However, the extent to which monitoring effects the frequency of easement violations remains unclear.

Conclusions

Forestland conservation easements in the USA generally reflect an understanding of the various stewardship and management concerns associated with modern forestry. So too do these easements reflect a relationship between the goals for the property and the permitted forestry uses. This study reveals that at least a portion of the easement holding community in the USA are encouraging the active and progressive management of the lands with which they have been entrusted.

The use of conservation easements appears to be increasing world-wide as countries move to provide the necessary legal framework in which easements can operate. This study demonstrates, however, that the legal and tax structures are only the beginning. There are fundamental, operational concerns for working forest easements that warrant attention, particularly by forest landowners poised to place such easements on their properties. Additionally, even under the most favorable institutional conditions, as those found in the USA, the development and use of easements should be carefully considered. The manner in which the easement process is managed can directly contribute to the success or failure to meet its objectives. In addition to the attention warranted for responsible forest management, the scrutiny that easements have attracted due to their favorable tax benefits demands that care be taken in their use (Stephens 2006).

Of particular note is the potential role for professional forestry assistance in nearly every phase of easement agreement preparation and easement implementation. Clearly, the inventory and planning processes, active management for various forest products, monitoring and enforcement would all stand to benefit. Findings in this study suggest that tailoring easement terms to property conditions and the parties' respective goals would be well served by the involvement of professional forest managers. While professional forestry assistance is readily available in the USA, in many cases it is ignored or overlooked. In nations where such assistance is more difficult to acquire, even greater challenges may exist to the thoughtful development and implementation of forestland conservation easements.

Lastly, while the survey reflects concern and at times limitations on the use of chemicals, clearcutting, salvage harvesting and other silvicultural techniques, such restrictions may not be suitable for all settings, particularly in developing countries wherein subsistence or cultural demands for such products or treatments may be inconsistent with restrictions commonly found in the USA.

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